

1 TEMPERATURE SENSING DEVICE FOR SELECTIVELY MEASURING
2 TEMPERATURE AT DESIRED LOCATIONS ALONG AN INTRAVENOUS
3 FLUID LINE

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5 CROSS REFERENCE TO RELATED APPLICATIONS

6 This application is a continuation-in-part of copending U.S. Patent Application Serial No.
7 09/380,507, filed April 24, 2000, entitled "Method and Apparatus for Pressure Infusion and
8 Temperature Control of Infused Liquids"; ^{now U.S. P.N. 6,824,528} which is a National Stage Application of PCT
9 International Application No. PCT/US98/04199, filed March 3, 1998, entitled "Method and
10 Apparatus for Pressure Infusion and Temperature Control of Infused Liquids", which claims
11 priority from U.S. Provisional Patent Application Serial Nos. 60/040,885, filed March 3, 1997,
12 entitled "Method and Apparatus for Measurement and Control of Temperature for Infused
13 Liquids" and 60/062,315, filed October 17, 1997, entitled "Method and Apparatus for Pressure
14 Infusion and Temperature Control of Infused Liquids". The disclosures of the foregoing patent
15 applications are incorporated herein by reference in their entireties.

16 BACKGROUND OF THE INVENTION

17 Technical Field

18 The present invention pertains to temperature sensing devices for monitoring temperature
19 of intravenous fluid. In particular, the present invention pertains to temperature sensing devices
20 that monitor the temperature of intravenous fluids at any desirable location along a fluid line
21 (e.g., an intravenous fluid line) to ensure a desired fluid temperature is maintained within the
22 fluid line prior to entering a patient.

23 Discussion of Related Art

24 Intravenous (IV) fluids are typically infused within a patient utilizing a liquid filled bag
25 or container and an IV fluid line for delivering fluids under gravity and/or applied pressure from
26 the container to the patient. It is important in many situations that the temperature of the fluid
27 within the IV line be maintained within a desirable and safe temperature range upon entering the
28 patient so as to eliminate any potential for thermal shock and injury to the patient by the fluid.

29 Accordingly, the related art provides several devices that employ temperature sensors
30 to monitor and/or control the temperature of fluid flowing within an intravenous or other type